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SCIENCE AND TECHNOLOGY

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5 August 1983

CHINA REPORT

SCIENCE AND TECHNOLOGY

No. 205

CONTENTS

PEOPLE'S REPUBLIC OF CHINA

NATIONAL DEVELOPMENTS

- RENMIN RIBAO on Need for Advanced Technical Education
(Gao Yan; RENMIN RIBAO, 7 May 83) 1

LIFE SCIENCES

- Chinese Red Cross Plays Increasingly Important Role
(JIANKANG BAO, 3 Apr 83) 5

- First Isolation of 22A Strain Pneumonia Diplococcus
(Zhang Guiyi; JIANKANG BAO, 7 Apr 83) 7

- Briefs
Girl With Five X Chromosomes 9

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

- Biography of Professor Wang You
(Tu Chuanzhong, Yen Yuemin; YAOXUE TONGBAO, No 5, 1983) 10

ABSTRACTS

ELECTRONICS

- DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY], No 3,
10 Mar 83 14

- DIANZI JISHU [ELECTRONIC TECHNOLOGY], Nos 2, 3, 20 Feb, 20 Mar 83 15

ELECTRONIC COMMUNICATION

JIXIE GONGYE ZIDONGHUA [MACHINE-BUILDING INDUSTRY AUTOMATION],
Nos 2, 3, 4, 6, 1983 17

ELECTRONIC TECHNIQUE

DIANZI JISHU YINGYONG [APPLICATIONS OF ELECTRONIC TECHNIQUE],
Nos 3, 4, 25 Mar, Apr 83 19

MARINE RADIOACTIVITY

HAIYANG KEXUE [JOURNAL OF MARINE SCIENCE], No 3, 9 May 83 21

NATIONAL DEVELOPMENTS

RENMIN RIBAO ON NEED FOR ADVANCED TECHNICAL EDUCATION

Beijing RENMIN RIBAO in Chinese 7 May 83 p 3

[Commentary by Gao Yan [7559 1484]: "Vigorously Develop Higher Technical Education"]

[Text] At present, in our nation's higher educational structure, the ratio in administrative levels between undergraduate and technical courses is not totally reasonable, and training plans are out of line with social needs. If we do not seriously solve this problem, not only will we be unable to meet the needs of socialist reconstruction for different specifications of specialized personnel, but it will also lead to an enormous waste of personnel.

Among the total number of staff and workers in China, scientists and technicians constitute a relatively low ratio. Moreover, with too many engineers and too few technicians, many college undergraduates and few graduates of universities, and technical secondary schools, the internal structure of S & T personnel is irrational in many factories and enterprises. Take the system of metallurgy as an example. Among engineers and technicians in Shanghai Municipality's system of metallurgy, the ratio between engineers and technicians is 6.6:1. In the Capital Iron and Steel Company, the ratio is 9.6:1. The same situation is also prevalent in other regions, undertakings and enterprises. In some developed countries, the ratio is generally 1:3 to 1:10. But the opposite is true for the ratio in China. We have too few technicians and skilled workers. Many enterprises are forced to use college undergraduates and engineers, on a long-term basis, as technicians or even skilled workers. This is a serious waste of personnel.

For a long time, we have emphasized the development of undergraduate courses, and we have not paid sufficient attention to technical education. As a result, the number of students in technical schools are becoming steadily smaller and smaller. In 1952, students in colleges for technical training constituted 31.3 percent of the total number of university students. In 1965, they constituted only 4.5 percent. During the 10 years of internal disturbances, colleges for technical training were almost completely abolished. After smashing the "gang of four" they have been restored, and have shown some development. In 1979, their students constituted

34.17 percent of the total number of university students. But recently, many newly established universities and colleges (including workers' universities) have eagerly endeavored to develop four-year undergraduate programs. In their ideas about running a school, many colleges for technical training are trying hard to draw close to undergraduate colleges. Many colleges for technical training have become undergraduate schools. In 1981, the number of students in technical schools dropped to only 17.11 percent of the total number of university students. Among this small number of technical students, 62 percent were studying in normal junior colleges, and only 15.7 percent in engineering colleges. Among the total number of university students majoring in engineering, those in engineering technical schools constituted 7.5 percent. Such structure is obviously unreasonable.

In addition, the imbalance in the ratio between university undergraduates and students of technical secondary schools is serious. In 1952, the ratio between university students majoring in engineering and students in technical secondary schools was 1:2.4. In 1981, the ratio changed to 2:1. Moreover, many specialized subjects lack students. Comrades at the Shanghai Shipbuilding Factory believe that the ratio among technical personnel between university students and students of technical secondary schools should be 1:10. But since the factory has not been assigned students from technical secondary schools for the past 10 years, it has become customary to use university students to do the work of students from technical secondary schools.

To change the situation of personnel shortage and an unreasonable personnel structure, we must vigorously develop professional schools. In higher education, we must vigorously develop higher technical education, while we continue to develop and elevate undergraduate education. At present, our nation is particularly in want of first class specialized personnel in all battle lines who are graduates of technical education. Among our several hundred thousand enterprises, an absolute majority are medium and small enterprises. They generally manufacture products of finalized designs. They need large quantities of technical personnel in such areas as manufacture, technology, inspection and survey, installation, and repair. These types of personnel can all be trained by higher technical schools. Even for factories and enterprises which require superior technology, technicians in charge of research and design have to be trained by university undergraduate courses. But technicians in charge of such areas as technological design, construction and manufacture can be trained by university technical education. In the area of agriculture, we need, in addition to research fellows, many agronomists, agricultural machinists, and agricultural engineers to undertake such tasks as technological development and popularization. According to a report by agricultural departments, the ratio between the two should generally be 1:10. The latter type also needs many agricultural technicians as assistants. The ratio between these two should also be 1:10. These three groups should be trained, respectively, by undergraduate education at universities, higher agricultural professional schools, and technical secondary schools or agricultural secondary schools. In 1981, the ratio in our nation's agricultural universities between undergraduate students and technical

students was 6.3:1. This structure does not meet the objective needs. Specialized personnel needed by such works as finance and economics, mangement, and tourism can mostly be trained by technical universities and colleges. Thus, development of higher technical education will help to change the unreasonable situation of the present personnel structure. It will also help to increase the profits of investments on higher education. The cost of training an undergraudate student can be used to train three technical students. We can use the same amount of manpower, material resources, and financial power to train more specialized personnel. The level of higher technical education must reach a certain ratio. It is an important part of our system of higher education.

Even some developed countries emphasize the importance of higher technical education. In the United States, the two-year system in technical colleges had very fast development in the 1960's and 1970's. The increase in the number of students was twice that of the students of the four-year system in colleges and universities. In 1977-1978, there were over 4 million students in the two-year system of technical colleges and universities, and they accounted for 36.8 percent of the total students in colleges and universities. In West Germany, higher technical education is an important part of the system of higher education. In 1977, among the 265 West German universities and colleges, 136 were higher technical schools, constituting 51 percent. The emphasis by these countries on the development of higher technical education can be used by us as references.

To quicken the development of our nation's higher technical education, we would like to make two proposals:

(1) Improve the scientific nature of our forecast on the need for specialized personnel. Our nation's training of specialized personnel is invested by the state. Agencies which utilize the personnel are not responsible for the cost of the training. They often ignore the objective rules of personnel distribution at higher, medium and preliminary levels. They blindly believe that the higher the cultural standards are, the better they will be. When they report on the figure of the personnel they need, they raise the figure for graudates from the undergraduate courses at the universities, very much exceeding the training ability of our present colleges and universities. They pay relatively little attention to the graudates from technical secondary schools. This is a problem which deserves our attention. Therefore, in addition to our survey about the needs of various professions, we must from now on also analyze the structure of various levels in the personnel needed by different professions.

(2) We must encourage, by policies and measures, the development of higher technical education. We propose that from now on for a certain period, the approval authority for new construction of universities and colleges for undergraduate courses (including branches of universities for non-resident students) should be given to the Ministry of Education. The approval authority for technical education should be given to ministries and commissions of provinces, municipalities, autonomous regions, and the central government. We must formulate a policy which will help the

development of higher technical education. There should be clear and reasonable regulations for student recruitment for higher technical schools, distribution and salaries of their graduates, their degrees, and titles of their teachers. Our methods for running higher technical schools, our teaching plans, teaching materials, and teaching contents and methods should all be devised with the purpose of developing specialized personnel for the production frontline. We must introduce reforms to develop the characteristics of higher technical schools.

12397

CSO: 4008/109

LIFE SCIENCES

CHINESE RED CROSS PLAYS INCREASINGLY IMPORTANT ROLE

Beijing JIANKANG BAO in Chinese 3 Apr 83 p 1

[Article: "In the Positive Initiation of Social Welfare Work with Chinese Characteristics, the Red Cross Society of China is Playing an Increasingly Important Role; The Society Has More Than 6,000 Basic Organizations with over 1.1 Million Members; All Members Are Energetic in Activities of Publicizing Hygiene, Medical Treatment and First Aid, Blood Collection, Social Services, International Exchange of Friendly Visits and So Forth, Making Their Contribution in Ensuring People's Safe Production and Healthy Living and in Improving the People's Friendship and Cooperation with Different Countries"]

[Text] Reporter Huang Zemin [7806 3419 3046] of this newspaper learned from the Working Meeting of the Red Cross Society of China held from 31 March to 2 April in Beijing that: In the past 2 years, the Red Cross Society is developing steadily. The statistics up to the end of last year shows that 18 of its organizations at the levels of province, municipality directly under the central government and autonomous regions have been reestablished, and the number of its basic units in subdistrict, factory, mines, and schools have reached to more than 6,000 with over 1.1 million members. Its members are playing increasingly important roles in publicizing hygiene, medical treatment and first aid, blood collection, social services, and international exchange of friendly visits.

First of all, the Red Cross Societies at different levels organized their members to initiate training of various medical aids; by the end of last year, there were more than 3.8 million people in this kind of training. After the training, some members can take action promptly to prevent the occurrence of different kinds of industrial injury, poisoning, acute disease, drowning and the harmful effects caused by vicious incidents. Thus, they made contributions in ensuring people's safe production and healthy living.

Meanwhile, a great number of the members joined with the masses in vigorously pursuing activities of the "five stresses" (stress on decorum, manners, hygiene, discipline and morals), "four points of beauty" (beauty of the mind, language, behavior, and the environment), and "three loves" (love for the motherland, love for the people, labor, science, and love for socialism) by going out into communities to publicize spiritual

civilization, to set up supervising posts of sanitation and medical stations, to build up Red Cross hygienic streets and lanes, to clean waste matter, to keep traffic order and to help the elders and the maimed. People praise the members wearing Red Cross badges on their arms as the active elements in learning from Lei Feng. The youngsters' Red Cross activities aimed at building socialist spiritual civilization are increasingly vital as well. At present, there are 220,000 Red Cross teenagers in different localities helping their teachers proceed in hygienic work and supervising environmental sanitation. The summer camps held by the Red Cross Society every year offer their young members opportunities to broaden their common knowledge of hygiene and medical aid and to cultivate their ideology and character in social services.

In activities of the initiation of social welfare work, the Shanghai Red Cross backed the masses in the fund raising and in the acceptance of cash and equipment donations to run a Red Cross Welfare Station for the maimed, this helped tens of maimed youngsters to gain jobs and lightened the burden of society. The Xi'an Red Cross Society has organized a mobile physical examination team. More than 30,000 teachers and pupils of 30 middle and primary schools have been examined and medical measures have been arranged. This made profound impressions on society.

The Red Cross organization of China also assists the government in relief after natural calamity, in settling the refugees of Indochina and other social welfare work. In the recent 2 years, The Red Cross Society of China has aided 30 foreign countries with cash or materials valued at 2.9 million yuan. Its headquarter has also handled 1,026 international cases of finding people and transmitting letters, 102 cases have been solved by finding relatives and friends who have long been parted for people within or outside China.

This meeting discussed in particular problems on how the Society will catch up with new trends, how it will become a Society with Chinese characteristics by reforming and blazing new trails and how to create a new situation in its work in order to make many more contributions to the building of socialist material and spiritual civilizations.

Cui Yueli, Minister of the Ministry of Health met with all personnel taking part in the Working Meeting and made a speech. He pointed out that the Red Cross Society has fulfilled many tasks and still must fulfill many tasks now and then, it is not at all indispensable. The health departments at all levels must support and study the work of the Society, uniting together with the hygienic force of the masses of the Society just like hemp twisted together to form a rope.

12272
CSO: 4008/119

FIRST ISOLATION OF 22A STRAIN PNEUMONIA DIPLOCOCCUS

Beijing JIANKANG BAO in Chinese 7 Apr 83 p 1

[Article by Zhang Guiyi [1728 2247 0001]: "In the Second Hospital Attached to the Wuhan Medical College, A Strain of 22A-Type Pneumonia Diplococcus Was Isolated from a Patient's Blood for the First Time in the World"]

[Text] A strain of 22A-type pneumonia diplococcus has been isolated from a patient's blood in the Second Hospital attached to the Wuhan Medical College for the first time in the world. It is a contribution to the understanding of the global dispersion of various types of pneumonia cocci. The World Health Organization (WHO) wrote a special letter to the Hospital conveying its congratulations.

The patient is male, aged 50, a native of Huangpi County, Hubei Province, was admitted in early 1982, and diagnosed definitely in clinic care as suffering from upper-right lobar pneumonia. Pneumonia coccus was not found in the patient's sputum culture but its diplococci were found in his blood culture. After a general determination this diplococcus was put into tests quelling and agglutinate reactions of its capsule with corresponding types of specific antigenic substance and proved to be a strain of 22A-type pneumonia diplococcus. Its susceptibility is utmost-sharp with penicillin and tetracycline and medium-sharp with gentamicin, kanamycin, chloromycetin and streptomycin. The patient recovered and was discharged from the hospital after clinical treatment. One year has elapsed since then and he has been working normally up to the present time.

The pneumonia diplococcus is the major cause of bacterial lobar pneumonia, otitis media and cerebrospinal meningitis occurring in most parts of the world. Reliable data concerning serious infection of humans caused by different types of pneumonia coccus is very scant worldwide. A coordinated team made up of China and the WHO for classifying types of pneumonia diplococcus was formed in 1981 and the Laboratory Department of the Second Hospital attached to the Wuhan Medical College was assigned to undertake this scientific research. Starting from January 1982, personnel of this department collected bacteria from patients. Four strains of pneumonia diplococcus (including a 5-type from cerebrospinal fluid and 3 from blood which belong respectively to 36-type, 21-type and 22A-type) have been isolated. After appraisal by the Institute of Medicine and Biological

Products Examination under the Ministry of Health, they were sent to the Center of Pneumonia Cocci of the WHO and the Laboratory of Pneumonia Diplococcus of the University of Pennsylvania, Philadelphia, U.S.A. for appraisal, this strain of 22A-type pneumonia diplococcus which was isolated from the patient's blood has been held by them as the first one isolated in the world at present.

12272

CSO: 4008/119

LIFE SCIENCES

BRIEFS

GIRL WITH FIVE X CHROMOSOMES--A rarely seen case of sexual chromosome aberration--5-X syndrome--has been found at the Normal Bethune International Peace Hospital during chromosome research. After examination by specialists, they believe this is the first such case in China. An article on the finding was published in both the Chinese and English editions of ZHONGHUA YIXUE ZAZHI (CHINESE MEDICAL JOURNAL) not long ago! The chromosomes of normal people are 23 pairs, 46 lines. The 23rd pair of sexual chromosomes are XY for male and XX for female, but that of the little girl was found to be XXXXX. She is a patient for sexual chromosome aberration with congenital heart disease and fusion of the ulna and radius at their close ends. This finding has provided eugenics research in China with valuable data and is also good for improving the quality of population and promoting the work of birth control. [Text] [Beijing JIANKANG BAO in Chinese 11 Apr 83 p 3] 12272

CSO: 4008/117

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

BIOGRAPHY OF PROFESSOR WANG YOU PUBLISHED

Beijing YAOXUE TONGBAO [CHINESE PHARMACEUTICAL BULLETIN] in Chinese No 5, 1983 pp 43-45

[Introduction of Pharmaceutical Personage by Tu Chuanzhong [1458 0278 1813] and Yen Yuemin [0791 2588 2404]: "Professor Wang You, a Bio-Organic Chemist"]

[Text] Wang You [3076 3731] styles himself Junmou [0689 6180], a native of Hangzhou municipality, Zhejiang Province, born in 1910 and graduated with a Bachelor of Science degree from the Industrial Chemistry Department of the privately-run Jinling University in Nanjing municipality in 1931. He studied at the Institute of Chemistry, Munchen University, Germany in 1935 and was granted a Doctor of Science degree Magna Cum Laude in the winter of 1937. He is a researcher and the director of the Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences (CAS); vice president of the CAS's Shanghai Branch; member of the Chemical Department of the State Council; chief editor of HUAXUE XUEBAO [ACTA CHIMICA SINICA]; member of the editing committee of KEXUE TONGBAO [SCIENCE BULLETIN], ZHONGGUO KEXUE [SCIENTIA SINICA] and SHENGWUHUAXUE YU SHENGWUWULI XUEBAO [ACTA BIOCHIMICA ET BIOPHYSICA SINICA]; and member of the Standing Committee of China Chemical Society.

Wang is a well-known chemist. His specialty is organic chemistry and biochemistry. Ever since he began engaging in scientific research some 50-odd years ago, he has always worked at the front line and has never departed from laboratories except for one and a half years during the "Great Cultural Revolution" period when he was illegally isolated.

After his graduation from Jinling University and before his departure to study in Germany, Professor Wang worked in the privately-run Union Medical College, Beijing, following Wu Xian [0702 2009], a biochemist, in research on male hormones and so forth. In the period from October 1935 to December 1937, at the Institute of Chemistry, Munchen University, Germany, he was a postgraduate directed by the famous Nobel-prize-winning chemist, Professor Heinrich Wieland in the study of making unsaturative cholic acid and cholesterol, and synthesized acetyl cholesterol and acetyl cholesterol. After receiving a doctoral degree, he continued his research there. From September 1938 to March 1939, he worked as a visiting researcher in the Department of Organic Chemistry, Kaiser Wilhelm Institute for Medical Research at Heidelberg. Under the direction of the world-famous Nobel-prize-winning chemist, Professor Richard Kuhn, he engaged in the research of chemistry of

Safranine and synthesized 14-acetyl safranine. In April 1939, he politely declined the invitation to remain working there by Professor Kuhn and transferred to London, England and worked as a visiting researcher at the Institute of Biochemistry, Methodist Medical College on the synthesis of substances of female hormones and so forth. After going through the strict training and cultivation by famous professors, Wang formed a serious and careful style of scientific research and spirit of devoting himself to the sciences and daring to blaze new trails; all these exerted tremendous influences in his scientific career thereafter.

In August 1939, Wang returned to Beijing, China and worked in the privately-run Union Medical College as instructor and then associate professor. In addition to instructing bio-organic chemistry, he spent most of his time on the determination of pregnanediol in the urine of pregnant women and the study of effective elements and pharmacologic effects of Chinese angelica. In January 1942, the College was occupied by the Japanese army and there was nothing to do but leave for the South.

In the 1940's, Wang was hired as director of the privately-run Shanghai Bingkang Pharmaceutical Plant and concurrently as director of its laboratory. He developed work related to pharmaceutical research there and devoted himself to the improvement of injection production and the synthesis of sulfa drugs at first; it was ill-informed because by that time Shanghai was under Japanese occupation. In any case, he heard by chance that there was a newly-invented special antibiotic that was cultured from mold. For the good of mankind, he studied hard in order to master knowledge in fields of microbiology and fermentation, and made up his mind to blaze trails for antibiotics research in China. After going through several years' research and experiment and overcoming various difficulties, he finally isolated a new kind of antibiotic--citrinin, and wrote a thesis titled "Citrinin." After this thesis was published in the U.S. magazine "Science" in 1947, U.S. news agencies dispatched this news from San Francisco and reported that Chinese Chemist Wang You and his colleagues succeeded in making citrinin, an antibiotic whose effect is similar to penicillin. Nevertheless, the capitalists of the pharmaceutical plant, for the purpose of making money, were against Wang's research of citrinin and fired him. In September 1947, Wang worked as a researcher in the preparatory office of the Medical Institute of Academia Sinica, continuing the research of citrinin in the aspects of its structure, synthesis, biological actions, toxicity, pharmacology and so forth. This was the first time China had a rather systematic research of an antibiotic. After China's liberation in 1949, CAS was organized and Wang was appointed a researcher of the Institute of Physiology and Biochemistry and transferred as a researcher and Deputy Director of the Institute of Organic Chemistry in late 1952. The party and government thought highly of the development of science in China and provided favorable conditions for scientific research, and these helped to finally gain a satisfactory result in research of citrinin. Wang wrote about 10 theses on citrinin, and one of them--"A Chemical Study of Citrinin" was awarded third prize of China's Scientific Awards for the first time in 1956. In 1952, Wang took part in the sponsorship of the organizing and convening of China's first working conference on antibiotics, he again took part in the

organization of the Shanghai Committee of Antibiotics Research and the National Committee of Antibiotics Research. In 1955, he presided over the International Scientific Conference on Antibiotics, all these have played important roles in promoting our country's antibiotics research and production. Thus, Wang You is one of the founders of China's antibiotics research. In 1962, Wang was appointed Acting Director of the Institute of Organic Chemistry, CAS. Under his direct leadership, research of basic elements of life--nucleic acid, protein and polysaccharide were set up step by step. In 1965, for the first time in the world, China was successful in total synthesis of crystalline bovine insulin; this achievement was given a high value by the international scientific community and was awarded a prize in the 1978 National Science Conference. Wang was one of the leaders of this program, he managed and participated himself in the work of synthesis of the A-chain of this bovine insulin. In late 1981, China, again, was the first country in the world to successfully synthesize a ribonucleic acid with biological activity--yeast alanine transfer-ribonucleic acid (T-RNA). This indicated once more that China is steadfast in its position to remain in the ranks of countries advanced in biological macromolecules. Wang, as one of the leaders of this achievement, made new improvement and had new findings in the ways and mechanism of chemical synthesis; these show his constant effort in basic theory.

In the field of pharmaceutical research, under Wang's leadership, success was also achieved in verifying the chemical structure of the effective constituent of *fraxinus bungeana*--substance of *fraxinus bungeana* which has antidiarrheal efficacy, and at present, positive research is underway on the structure of the protein contained in the root of Chinese trichosanthes which is effective in inducing labor. He managed also the research and creation of a new kind of substituted palm--carboxymethyl saccharogenic starch, it is highly effective and safe. This is an original Chinese creation, and in comparison with dextrose glycoside, which is used worldwide, their effects are the same but the former has the advantages of ready supply of raw materials and simple productive technology. It was already applied widely in clinical utilization.

In addition, Wang initiated research of organic and biological catalysis in China. Results gained in the research of petroleum dewaxing in submerged fermentation have been popularized in the fermental production of low freezing-point petroleum in some refineries, and results gained in the research of petroleum yeast-protein feedings have laid a foundation for the research and production of petroleum protein. Besides these, he also made contribution in the research and production of the reactive and sensitized dyes of China.

Wang is serious in work and meticulous in scholarship, he always gives directions personally in every research task assigned to him, from designation of process, method of synthesis, means of analysis, sorting of data to the final completion of a report; demands set by him are strict and not the least bit of negligence is allowed. He trains the younger generation by personal example as well as verbal instruction. All youths cultivated by him are now backbones of their professions, some of them are even in the leading positions of research departments.

More than 100 academic theses by Wang have been published in various periodicals at home and abroad, more than ten of his achievements in research were commended by the state and the CAS. The party and people give him the trust and honor he deserves for his brilliant ability and outstanding contributions. In 1955, he was appointed member of the Medical and Pharmaceutical Team of the Science Planning Commission of the State Council; in 1961, he had the honor of being admitted into the CPC; in 1962, he participated in drawing the 10-year Plan of Scientific and Technological Development; he was representative to the Second Chinese People's Political Consultative Conference and a deputy to the 2nd, 3rd, and 5th National People's Congress; in 1977, he was chosen as an advanced worker in Shanghai; in 1978, he was chosen as an advanced person who made significant contributions in scientific and technological work.

Wang has done much positive and valuable work in developing exchange and friendship of academic circles between China and foreign countries. He was one of the persons who took charge of the Beijing International Meeting of Antibiotics 1955, China-West Germany Academic Discussion on Protein and Nucleic Acid 1979 and Sino-U.S. Chemical Meeting of Natural Products in 1980. His accomplishments in scientific research are valued and praised by the international academic community. In October 1974, the Imperial College of Science and Technology, London University suggested naming Wang as its honorable researcher, but he politely declined it because of the situation at that time. In 1981, he was elected member of the Editing Committee of the international periodical "Nucleic Study" and honorable member of the Editing Committee of the "Tetrahedron" and the "Tetrahedron Bulletin."

At present, Wang is over 70 years old but is still vigorous, he makes nothing of hardships to work day and night. Filled with ardor and sincerity, he wants to make much greater contributions to China's research and basic elements of life in his remaining years and to devote the energies of all his life to the scientific research of his motherland.

12272

CSO: 4008/125

AUTHOR: WU Xiangjuan [0702 3276 1337]

ORG: None

TITLE: "3T01 Vacuum Heat Collecting Tube Solar Heat Collector Design Finalized and in Production"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 3, 10 Mar 83 p 48

ABSTRACT: A production design finalizing and certification conference for the 3T01 vacuum heat collecting tube solar heat collector, a product of joint research of Qinghua University and Beijing Electron Tube Plant, was called by the General Company of Electronic Apparatus Industry of Ministry of Electronic Industry in Nov 82 in Beijing. Test production of the collector has been carried out by Beijing Electron Tube Plant for a year. Its production line has now been formed and the plant has the capability of producing it in batches. The collector is made of tubes of a double-layer glass structure. The external wall of the inner glass layer is covered with a black nickel paint, the absorption rate of which reaches 0.89-0.91. There is a vacuum between the 2 layers of glass, with an air-elimination agent added to obtain a high heat collection rate and extremely low rate of heat loss. The heat collecting effect of the collector is not related to the position of the sun. Compared with the panel type solar heat collectors, which can provide hot water of less than 65°C during the 3 seasons of spring, autumn, and summer, the vacuum tube collector can provide hot water of 100°C all year long, affected very little by environmental temperature. Low temperature (-15°C) tests proved that it has no damaging effect on the collector.

AUTHOR: TANG Guanghua [0781 0342 5478]

ORG: None

TITLE: "Research on PIN Tube Electrical Modulation Frequency Sudden Variation Magnetic Control Tube Has Succeeded"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 3, 10 Mar 83 p 48

ABSTRACT: With the help of Shanghai Light Bulb Plant, et al, the Radio Department of Zhejiang University succeeded in producing China's first electrical modulation frequency sudden variation magnetic control tube. The speed of frequency modulation depends upon the switching time of the PIN tube. The switching time of PIN tubes made in China has reached the microsecond class; that of the foreign ones may be as short as several hundred millimicroseconds. The magnetic control tube of Zhejiang University is made by adding one or several PIN tubes to a fixed frequency meganetic control tube, CKM-114. This type of magnetic control tube is suitable for light air-borne radar to cause it to have the property of resisting ocean or ground interference. The major technical indices of the PIN tube electrical modulation magnetic control tube are given.

6248

CSO: 4009/196

AUTHOR: None

ORG: None

TITLE: "First National Symposium on the Application of 4-Place Microcomputers Held in Shanghai"

SOURCE: Shanghai DIANZI JISHU [ELECTRONIC TECHNOLOGY] in Chinese No 2, 20 Feb 83
p 19

ABSTRACT: The 1st National Symposium on the Application of 4-place Microcomputers was held from 27 Nov to 1 Dec 82 in Shanghai and attended by 189 delegates representing 101 units. The delegates discussed 14 special subjects concerning application of 4-place, one-place microcomputers, listened to component plants introducing their circuits, visited sites of their applications, toured exhibits of sample machines, etc. The delegates agreed that in the next few years emphases should be on formulating policies of developing 4-place microcomputers, continuing to add series and types of such machines made in China, extending their applications, and training skilled persons.

AUTHOR: MA Chuantian [7456 0278 3240]

ORG: None

TITLE: "Fifth Annual National Conference on Power Source Technology Held in Xian"

SOURCE: Shanghai DIANZI JISHU [ELECTRONIC TECHNOLOGY] in Chinese No 2, 20 Feb 83
p 19

ABSTRACT: The 5th Annual National Conference on Power Source Technology was held in Xian on 2-9 Dec 82. It was attended by 177 official delegates. More than 110 papers were received, covering rich and broad subjects. The spirit of economic construction prevailed. The activities of this annual conference produced delightful results which will undoubtedly promote the development of power source technology in all the regions of the nation. The Power Source Technology Specialty Committee of Shanghai Municipal Society of Electronics presented 13 papers and assigned an official delegation of 16 members to attend the conference.

AUTHOR: CHEN Dexiao [7115 1795 1321]
ZHOU Deqin [6392 1795 0530]

ORG: None

TITLE: "Fourth Annual Conference on Vacuum Electronics Held in Shanghai"

SOURCE: Shanghai DIANZI JISHU [ELECTRONIC TECHNOLOGY] in Chinese No 3, 20 Mar 83
p 41

ABSTRACT: The 4th Annual Conference of the Vacuum Electronics Society China Society of Electronics was held in Shanghai on 9-15 Dec 82 and attended by 240 specialists, professors, and young and middle-aged scientists. A total of 207 papers were received. Judging from the quality of these papers, improvement over those of previous annual conferences was evident. The contents involved the theory, application, sampling, and inspection of electronic vacuum devices, as well as the current domestic and foreign conditions of the field and new types of devices. Some old and middle-aged specialists and professors, such as LU Zhongzuo [7120 6988 4373] ZHANG Enqiu [1728 1869 5876] WEI Yu [7279] et al were invited to deliver reports and received unanimous acclamation. As a separate event, representatives of some plants, research institutes, colleges, and a few specialists were asked to participate in a symposium to contribute plans and policies for promoting the function of electronic vacuum devices in 4-modernization construction. Many concrete and practicable suggestions were thus received.

AUTHOR: HUANG Weikang [7806 4850 1660]

ORG: None

TITLE: "Logic Circuit Analysis System Certified"

SOURCE: Shanghai DIANZI JISHU [ELECTRONIC TECHNOLOGY] in Chinese No 3, 20 Mar 83
p 41

ABSTRACT: Most recently, the logic circuit analysis system, LOCAS, a research product of the Department of Electronic Engineering of Fudan University underwent certification. This is a software system supported by the RSX-11M operating system. Its major function is to simulate the property of the logic circuit to verify the correctness of the logic design. It is composed mainly of the 2 programs of time-stepped simulation and logic simulation and is capable of simulating a logic circuit composed of several thousand gates. The system is equipped with structural description language and graphic description language, as well as the necessary monitor command and operating command. The system is currently being operated on a PDP-11/34 A computer.

6248

CSO: 4009/194

AUTHOR: SHUN Sheng [7311 0524]

ORG: None

TITLE: "Micro Industrial Control Devices, MIC-100 and MIC-300, Certified"

SOURCE: Beijing JIXIE GONGYE ZIDONGHUA [MACHINE-BUILDING INDUSTRY AUTOMATION] in Chinese No 2, 1983 backcover

ABSTRACT: The Institute of Machine-building Industry Automation Research Ministry of Machine Industry began to carry out studies on the manufacture and application of the MIC Series micro Industrial control devices in 1978. These are a series of programmable control devices with a microprocessor as the nuclear structure. They may be used to realize automatic control of machines and work processes. To date, the 4 devices of MIC-100, -200, -300, -400 have been successfully produced. MIC-100 and MIC-300 have been placed in application and proved to be stable and effective. On 26-30 Oct 82, a MIC-100 and MIC-300 Micro Industrial Control Certification Conference, called jointly by Academy of Machine Science Research Ministry of Machine Industry and Guangxi Zhuang Nationality Autonomous Region Science and Technology Committee, was held in Liuzhou Guangxi and participated by 123 delegates of 75 related leadership departments, research units, plants, and colleges. All delegates agreed unanimously that the devices should be certified and be produced in batches. They also hope that these new products, which have reached the advanced level of similar domestic products, may be further perfected to improve their quality and to reduce their cost so that they may exercise an even greater function in 4-modernizations construction.

AUTHOR: None

ORG: None

TITLE: "Notices of Satellite Communications Symposium in China Issued by CCIR"

SOURCE: Shanghai DIANXIN KUAIBAO [TELECOMMUNICATIONS INFORMATION] in Chinese No 4, Apr 83 p 20

ABSTRACT: Member-nations of the International Telecommunications Union (ITU) and other organizations received notices on 11 Mar 83, sent by CCIR, announcing the Satellite Communications Symposium in Shanghai, China on 5-12 Oct 83. It is also stated in the notice that the symposium to be held to celebrate the International Communication Year will evaluate and discuss the application of the satellite system in the domestic telecommunications network and will especially consider the benefits for developing nations. Chinese and English will be the working languages of the symposium. Simultaneous translations of these 2 languages will be provided. The collection of papers of the symposium will be published in English. Speeches at the symposium will be limited to 30 minutes in either language, with simultaneous translations in the 2 languages provided. The volume of collected papers will be published on the eve of the symposium.

6248

CSO: 4009/192

AUTHOR: XU Delin [1776 1795 2651]

ORG: None

TITLE: "Corrosion Problem of Aluminum Polyvinyl Chloride Covered Cable and Its Prevention"

SOURCE: Beijing DIANXIN JISHU [TELECOMMUNICATION TECHNOLOGY] in Chinese No 6, 83 pp 5-6

ABSTRACT: Research studies on aluminum alloy and magnesium alloy sacrificial anode materials have been conducted in China since 1965. At present, there are the following possible selections: the MG₁, MAZ₁, MAZ₂ magnesium alloy sacrificial anodes and AZI, AZIS, AZIC aluminum alloy sacrificial anodes produced by Fushun Aluminum Plant and the LXY₁₀₁, LXY₂₀₁, and LXY₃₀₁ aluminum alloy sacrificial anodes produced by Beijing Nonferrous Metals Metallurgical Plant. The electrical-chemical properties of these products are different and a proper selection depends upon the environment in which the anode is to be used. Some serious incidents of cable corrosion in regions of saline and alkaline soils are reported. The corrosion preventive property and the structural characteristics of this type of cables are explained. Techniques of isolating the aluminum cover from electrolytic solutions of the environment or applying cathode protection measures are also introduced.

AUTHOR: None

ORG: None

TITLE: "International Communication Year Activities Will be Launched by Ministry of Electronic Industry and China Society of Electronics"

SOURCE: Beijing DIANZI XUEBAO [ACTA ELECTRONICA SINICA] in Chinese No 3, May 83 p 28

ABSTRACT: The 36th Assembly of the United Nations passed a resolution in 1981 designating 1983 as the International Communication Year. All member nations and all international organizations related to communications are asked to utilize this opportunity to propagandize the important function of communication in the national economy and the lives of the peoples. All possible manpower, materials, and financial power are to be mobilized to implement the basic construction and promote the development of communications affairs. In China, a special "Chinese Committee of International Communications Year" has been established to launch the activities, with ZHU Xuefan [2612 1331 5400], Vice-chairman of the Standing Committee of the People's Congress, at the helm. Ministry of Electronic Industry and China Society of Electronics, both member-units of the special committee, are making appropriate arrangements and sending announcements concerning these activities, a few items of which are briefly described in the paper.

Electronic Technique

AUTHOR: None

ORG: None

TITLE: "Design Finalization Conference for CMOS Integrated Circuits Using International Standards Called by Beijing Municipal Bureau of Instruments and Meters"

SOURCE: Beijing DIANZI JISHU YINGYONG [APPLICATIONS OF ELECTRONIC TECHNIQUE] in Chinese No 3, 25 Mar 83 p 47

ABSTRACT: The Design Finalization Conference for CMOS Integrated Circuits Using International Standards, called by Beijing Municipal Bureau of Instruments and Meters, was held in Beijing on 19-20 Jan 82. A total of 13 products, made by Beijing Municipal Semiconductor Plant No 3 after its adoption of international standards, were presented to the conference to be certified. The DC electrical parameters, under normal, high, and low temperatures of all these products were found to reach the military grade of CMOS devices (JEDEC) of American Association of Electronic Engineering; the maximum work frequencies of the time-delay trigger of the gate circuit, the counter, etc. were found to be close to the level of products of the CD 4000B series of RCA and the MC14000B series of MOTOROLA of the USA. Quality inspection tests of 10 of these products found them to meet the requirements of "The General Technical Conditions of Semiconductor Integrated Circuits (3rd Revision)" for Type I and 3 of the products for Type I. This was the first Type I condition quality inspection in the country using international standards for CMOS integrated circuits. The delegates unanimously approved the designs of all 13 products.

AUTHOR: None

ORG: Department of Equipment, Communications Division, Shenyang Military Headquarters

TITLE: "A Good Instrument is Now Available to Detect Problems of Plastic Cables"

SOURCE: Beijing DIANZI JISHU YINGYONG [APPLICATIONS OF ELECTRONIC TECHNIQUE] in Chinese No 3, 25 Mar 83 p 47

ABSTRACT: Following the rapid development of telecommunications, a large quantity of plastic underground telecommunications cables have been installed in many localities in China but ideal testing equipment has never been made available. These cables are often damaged by rodents, lightning, or other factors and extensive manpower is consumed to dig up entire lines and peel open the cable to locate the problems to cause repairs to be very costly and very slow. A certain department of the Shenyang Troop; therefore, worked very hard to produce the Plastic Cable Problem Detector composed of transmitter, receiver, probe, etc. This instrument can locate many types of problems, including crossed lines, single break, double break, etc. directly and precisely on the ground surface. It is highly sensitive and can detect problems in a great distance.

AUTHOR: None

ORG: Special Subject Group of Computer Localized Network, Northeast College of Engineering

TITLE: "An Experimental Circular Miniaturized Network"

SOURCE: Beijing DIANZE JISHU YINGYONG [APPLICATIONS OF ELECTRONIC TECHNIQUE] in Chinese No 4, Apr 83 p 44

ABSTRACT: The experimental localized miniaturized network of Northeast College of Engineering is a single-direction circular network of 3 users, sharing one printer, a structure patterned after OSI levels of ISO. The lower level is divided into the physical level, link level, and network transmission level. The physical level uses RS-232C junction, with a transmission speed of 19.2K bit/sec and a distance of 1 km. The form of decentralized instruction management, similar to the HOLC frame structure, is adopted for the link level. Due to the fact that it is a single-direction circular network, such functions as the route selection method are not needed. An electronic mail delivery system has been launched for the higher level. Each locality can deliver the mail either on the magnetic disk or through the keyboard to the 'mailbox' (on the floppy disk) of one of the other linked localities, to be read at anytime. The system also has direct conversation capability and is provided with a property indices test program, capable of testing the errors, wrong grouping, delays, etc.

6248

CSO: 4009/195

Marine Radioactivity

AUTHOR: LI Peiquan [2621 1014 2164]

ORG: Research Institute of Oceanography Chinese Academy of Sciences

TITLE: "Brief Report of Studies on Artificial Radioactivity of the Oceans"

SOURCE: Beijing HAIYANG KEXUE [JOURNAL OF MARINE SCIENCE] in Chinese No 3, 9 May 83 pp 48-52

ABSTRACT: Major contents and results of studies on artificial radioactivity of the oceans, carried out in the past 38 years by various countries of the world, are briefly reviewed under the following headings: (1) Contents, distribution, and principles of variation of artificial radioisotopes in seawater, marine organisms, and sediments; (2) Forms of existence of nuclides in the seawater; (3) Absorption, concentration, and excretion of nuclides by marine organisms and studies on index species; (4) The dose rate of seawater, marine organisms, and floor materials and effects of radioactivity on organisms; (5) Radiation standard of seawater, seafoods, and discharge of pollutants; (6) Studies on the concentration, isolation, and test methods of radioactive nuclides; (7) Utilization of the ocean for the disposal and treatment of radioactive wastes; (8) Applications of radioisotopes in oceanographic studies. The following subjects are suggested for emphasis in the future: (1) Establish research agencies on radioactivity of the marine environment; (2) Forms of existence of important nuclides and their stable isotopes; (3) Improve methods of analysis of nuclides; (4) Comprehensive physical, chemical, biological, and geological study to determine principles of movement, dispersion, and exchange of nuclides in the ocean under the condition of waste discharge by nuclear power plants; (5) Using artificial isotopes as the tracer to study the boundary surface between the estuary and the coastal sea, the sediments and the water, the sea and the atmosphere, etc. Radioactivity studies of the sea in China are only briefly mentioned.

6248

CSO: 4009/197

END